

## **WHAT IS CLAIMED IS**

1. An image processing apparatus, comprising:  
an image data acquisition unit to acquirer first encoded image data of a first data size;  
an image data creation unit to create a second encoded image data of a second, smaller data size than the first data size from the first encoded image data;  
a display unit to displaying an image corresponding to the second encoded image data in a display unit;  
an editing unit to accept an edit operation to the image displayed in the display unit and for applying edit processing corresponding to the edit operation to the first encoded image data;  
and  
an edit-result manifesting unit to manifest a result of the edit processing to the second encoded image data.

2. The image processing apparatus as claimed in claim 1, wherein the image data acquisition unit acquires the first encoded image data in the form of loss-less encoded image data.

3. The image processing apparatus as claimed in claim 2, wherein the image data acquisition unit acquires the first encoded image data by a reversible mode of JPEG2000 algorithm.

4. The image processing apparatus as claimed in claim 1, wherein the image data creation unit creates the second encoded image data irreversibly from the first encoded image data in the form of lossy encoded image data.

5. Image processing apparatus, as claimed in claim 4, wherein the image data creation unit acquires the second encoded image data by an irreversible mode of JPEG2000

algorithm.

6. The image processing apparatus as claimed in claim 4, wherein the second encoded image data is data in which resolution or number of gradations of the first encoded image data is reduced.

7. Image processing apparatus as claimed in claim 1, wherein the image data creation unit creates the second encoded image data from the first encoded image data for a part of the first encoded image data reversibly in the form of loss-less encoded image data.

8. Image processing apparatus as claimed in claim 7, wherein the image data acquisition unit acquires the first encoded image data in the form of loss-less encoded image data, by dividing an original image into one or more regions and compressing the original image reversibly in each of the regions.

9. Image processing apparatus as claimed in claim 7, wherein the image data creation unit decodes the second encoded image data by a reversible mode of JPEG2000 algorithm in the form of the loss-less encoded image data.

10. The image processing apparatus as claimed in claim 1, wherein the editing unit applies the edit processing to the first encoded image data consecutively each time the edit operation is accepted.

11. The image processing apparatus as claimed in claim 1, wherein the editing unit applies edit processing to the first encoded image data with a specified timing.

12. The image processing apparatus as claimed in claim 11, further comprising a

storage device to save the edit operation.

13. The image processing apparatus as claimed in claim 11, wherein the editing unit applies edit processing corresponding to the edit operation to the first encoded image data with a timing specified by a user.

14. The image processing apparatus as claimed in claim 11, wherein the edit unit applies the edit processing corresponding to the edit operation to the first encoded image data upon completion of the edit operation.

15. The image processing apparatus as claimed in claim 1, further comprising an output unit to output the first encoded image data after the edit processing by the editing unit.

16. An image processing system, comprising:  
an image formation device comprising an encoding data generation unit to generate loss-less encoded data by compressing and encoding an image data by a reversible mode, decoding unit to decode the loss-less encoding data to image data by a reversible mode, and a printer engine for printing out an image from the decoded image data; and  
an image processing apparatus connected to the the image formation apparatus via a network,  
the image processing apparatus comprising:  
an image data acquisition unit to acquire first encoded image data of a first data size;  
an image data creation unit to create second encoded image data of a second, smaller data size than the first data size from the first encoded image data;  
a display unit to display an image corresponding to the second encoded image data in a display unit;  
an editing unit to accept an edit operation to the image displayed in the display unit and

applying edit processing corresponding to the edit operation to the first encoded image data;  
an edit-result manifesting unit to manifest an edit result of the edit processing to the second encoded image data; and  
an output unit to output the first encoded image data to an outside of the image processing apparatus after the edit processing by the editing unit.

17. An image processing method, comprising:  
acquiring first encoded image data of a first data size;  
forming a second encoded image data of a second, smaller data size than the first data size from the first encoded image data;  
displaying the second encoded image data in a display unit;  
accepting an edit operation to the second encoded image data displayed in the display unit and applying edit processing corresponding to the edit operation to the first encoded image data;  
and  
manifesting an edit result of the edit processing to the second encoded image data.

18. The method as claimed in claim 17, wherein the first encoded image data is acquired in the form of loss-less encoded image data in the image data acquisition step.

19. The method as claimed in claim 18, wherein the first encoded image data is acquired by a reversible mode of JPEG2000 algorithm in the image data acquisition step.

20. The method as claimed in claim 17, wherein forming the second encoded image comprises creating the second encoded image data irreversibly from the first encoded image data in the form of lossy encoded image data.

21. The method as claimed in claim 20, wherein forming the second encoded image

comprises acquiring the second encoded image data by an irreversible mode of JPEG2000 algorithm.

22. The method as claimed in claim 20, wherein the second encoded image data is the data in which resolution or number of gradations of the first encoded image data is reduced.

23. The method as claimed in claim 17, wherein forming the second encoded image comprises forming the second encoded image data from the first encoded image data for a part of the first encoded image data reversibly in the form of loss-less encoded image data.

24. The method as claimed in claim 23, wherein acquiring the first encoded image comprises acquiring the first encoded image data as in the form of loss-less encoded image data by dividing an original image into one or more regions and compressing the original image reversibly in each of the regions, and wherein the image data creation step forms the second encoded image data from the first encoded image data for a part of the plural regions reversibly in the form of loss-less encoded image data.

25. The method as claimed in claim 23, wherein forming the second encoded image comprises decoding the second encoded image data as the loss-less image data by a reversible mode of JPEG2000 algorithm.

26. The method as claimed in claim 17, wherein the edit processing is applied to the first encoded image data in the edit step each time the edit operation is accepted.

27. The method as claimed in claim 17, wherein accepting an editing operation comprises applying the edit processing to the first encoded image data with a predetermined timing.

28. The method as claimed in claim 27, further comprising saving the edit operation.
29. The method as claimed in claim 27, wherein accepting an editing operation comprises applying the edit processing corresponding to the edit operation to the first encoded image data with a timing designated by a user.
30. The method as claimed in claim 27, wherein accepting an editing operation comprises applying the edit processing corresponding to the operation to the encoded image data upon completion of the edit operation.
31. The method as claimed in claim 17, further comprising outputting the first encoded image data to an outside after the edit processing by the editing unit.
32. A computer-implemented method of image processing, comprising:  
acquiring first encoded image data of a first data size;  
forming a second encoded image data of a second, smaller data size than the first data size from the first encoded image data;  
displaying the second encoded image data in a display unit;  
accepting an edit operation to the second encoded image data displayed in the display unit and applying edit processing corresponding to the edit operation to the first encoded image data;  
and  
manifesting an edit result of the edit processing to the second encoded image data.
33. The computer-implemented method as claimed in claim 32, wherein the first encoded image data is acquired in the form of loss-less encoded image data in the image data acquisition.

34. The computer-implemented method as claimed in claim 32, wherein the first encoded image data is acquired by a reversible mode of JPEG2000 algorithm in the image data acquisition.

35. The computer-implemented method as claimed in claim 32, wherein forming the second encoded image data comprises creating the second encoded image data irreversibly from the first encoded image data in the form of lossy encoded image data.

36. The computer-implemented method as claimed in claim 35, wherein acquiring first encoded image data comprises acquiring the second encoded image data by an irreversible mode of JPEG2000 algorithm.

37. The computer-implemented method as claimed in claim 35, wherein the second encoded image data is the data in which resolution or number of gradations of the first encoded image data is reduced.

38. The computer-implemented method as claimed in claim 32, wherein acquiring first encoded image data comprises forming the second encoded image data from the first encoded image data for a part the first encoded image data reversibly in the form of loss-less encoded image data.

39. The computer-implemented method as claimed in claim 38, wherein acquiring first encoded image data comprises acquiring the first encoded image data as in the form of loss-less encoded image data by dividing an original image into one or more regions and compressing the original image reversibly in each of the regions, and wherein the image data creation step forms the second encoded image data from the first encoded image data for a part of the plural

regions reversibly in the form of loss-less encoded image data.

40. The computer-implemented method as claimed in claim 38, wherein acquiring first encoded image data comprises decoding the second encoded image data as the loss-less image data by a reversible mode of JPEG2000 algorithm.

41. The computer-implemented method as claimed in claim 32, wherein the edit processing is applied to the first encoded image data in the edit step each time the edit operation is accepted.

42. The computer-implemented method as claimed in claim 32, wherein accepting an editing operation comprises applying the edit processing to the first encoded image data with a predetermined timing.

43. The computer-implemented method as claimed in claim 42, further comprising saving the edit operation.

44. The computer-implemented method as claimed in claim 42, wherein accepting an editing operation comprises applying the edit processing corresponding to the edit operation to the first encoded image data with a timing designated by a user.

45. The computer-implemented method as claimed in claim 42, wherein accepting an editing operation comprises applying the edit processing corresponding to the operation to the encoded image data upon completion of the edit operation.

46. The computer-implemented method as claimed in claim 32, further comprising outputting the first encoded image data to an outside after the edit processing by the editing unit.



47. An article of manufacture having one or more recordable media storage instructions thereon which, when executed by a computer having an image processing apparatus, where the image processing apparatus is in communication with another image processing apparatus, causes the computer to perform a method comprising:

acquiring a first encoded image data of a first data size;  
forming a second encoded image data of a second, smaller data size than the first data size from the first encoded image data;  
displaying the second encoded image data in a display unit;  
accepting an edit operation to the second encoded image data displayed in the display unit and applying edit processing corresponding to the edit operation to the first encoded image data;  
and  
manifesting an edit result of the edit processing to the second encoded image data.

48. The article of manufacture as claimed in claim 47, wherein the first encoded image data is acquired in the form of loss-less encoded image data in acquiring the first encoded image data.

49. The article of manufacture as claimed in claim 48, wherein the first encoded image data is acquired by a reversible mode of JPEG2000 algorithm in acquiring the first encoded image data.

50. The article of manufacture as claimed in claim 47, wherein forming the second encoded image data comprises creating the second encoded image data irreversibly from the first encoded image data in the form of lossy encoded image data.

51. The article of manufacture as claimed in claim 50, wherein forming the second

encoded image data comprises acquiring the second encoded image data by an irreversible mode of JPEG2000 algorithm.

52. The article of manufacture as claimed in claim 50, wherein the second encoded image data is the data in which resolution or number of gradations of the first encoded image data is reduced.

53. The article of manufacture as claimed in claim 47, wherein forming the second encoded image data comprises forming the second encoded image data from the first encoded image data for a part of the first encoded image data reversibly in the form of loss-less encoded image data.

54. The article of manufacture as claimed in claim 53, wherein acquiring the first encoded image data comprises acquiring the first encoded image data as in the form of loss-less encoded image data by dividing an original image into one or more regions and compressing the original image reversibly in each of the regions, and wherein the image data creation function forms the second encoded image data from the first encoded image data for a part of the plural regions reversibly in the form of loss-less encoded image data.

55. The article of manufacture as claimed in claim 53, wherein forming the second encoded image data comprises decoding the second encoded image data as the loss-less image data by a reversible mode of JPEG2000 algorithm.

56. The article of manufacture as claimed in claim 47, wherein the edit processing is applied to the first encoded image data in the edit function each time the edit operation is accepted.

57. The article of manufacture as claimed in claim 47, wherein accepting the edit operation comprises applying the edit processing to the first encoded image data with a predetermined timing.

58. The article of manufacture as claimed in claim 57, further saving the edit operation.

59. The article of manufacture as claimed in claim 57, wherein accepting the edit operation comprises applying the edit processing corresponding to the edit operation to the first encoded image data with a timing designated by a user.

60. The article of manufacture as claimed in claim 57, wherein accepting the edit operation comprises applying the edit processing corresponding to the operation to the encoded image data upon completion the edit operation.

61. The article of manufacture as claimed in claim 47, wherein the method further comprises outputting the first encoded image data to an outside after the edit processing by the editing unit.

62. An article of manufacture having one or more recordable media storage instructions thereon which, when executed by a computer having an image processing apparatus, where the image processing apparatus is in communication with another image processing apparatus, causes the computer to perform a method comprising:

acquiring a first encoded image data of a first data size;

forming a second encoded image data of a second, smaller data size than the first data size from the first encoded image data;

displaying the second encoded image data in a display unit;

accepting an edit operation to the second encoded image data displayed in the display unit and applying edit processing corresponding to the edit operation to the first encoded image data; and

manifesting an edit result of the edit processing to the second encoded image data.

63. The article of manufacture as claimed in claim 62, wherein the first encoded image data is acquired in the form of loss-less encoded image data in the image data acquisition function.

64. The article of manufacture as claimed in claim 63, wherein the first encoded image data is acquired by a reversible mode of JPEG2000 algorithm in the image data acquisition function.

65. The article of manufacture as claimed in claim 62, wherein forming the second encoded image data comprises creating the second encoded image data irreversibly from the first encoded image data in the form of lossy encoded image data.

66. The article of manufacture as claimed in claim 65, wherein forming the second encoded image data comprises acquiring the second encoded image data by an irreversible mode of JPEG2000 algorithm.

67. The article of manufacture as claimed in claim 65, wherein the second encoded image data is the data in which resolution or number of gradations of the first encoded image data is reduced.

68. The article of manufacture as claimed in claim 62, wherein forming the second encoded image data comprises forming the second encoded image data from the first encoded

image data for a part of the first encoded image data reversibly in the form of loss-less encoded image data.

69. The article of manufacture as claimed in claim 68, wherein acquiring the first encoded image data comprises acquiring the first encoded image data as in the form of loss-less encoded image data by dividing an original image into one or more regions and compressing the original image reversibly in each of the regions, and wherein the image data creation function forms the second encoded image data from the first encoded image data for a part of the plural regions reversibly in the form of loss-less encoded image data.

70. The article of manufacture as claimed in claim 68, wherein forming the second encoded image data comprises decoding the second encoded image data as the loss-less image data by a reversible mode of JPEG2000 algorithm.

71. The article of manufacture as claimed in claim 62, wherein the edit processing is applied to the first encoded image data in the edit function each time the edit operation is accepted.

72. The article of manufacture as claimed in claim 62, wherein accepting the edit operation comprises applying the edit processing to the first encoded image data with a predetermined timing.

73. The article of manufacture as claimed in claim 62, wherein the method further comprises saving the edit operation.

74. The article of manufacture as claimed in claim 62, wherein accepting the edit operation comprises applying the edit processing corresponding to the edit operation to the first

encoded image data with a timing designated by a user.

75. The article of manufacture as claimed in claim 62, wherein accepting the edit operation comprises applying the edit processing corresponding to the operation to the encoded image data upon completion of the edit operation.

76. The article of manufacture as claimed in claim 62, wherein the method further comprises outputting the first encoded image data to an outside after the edit processing by the editing unit.